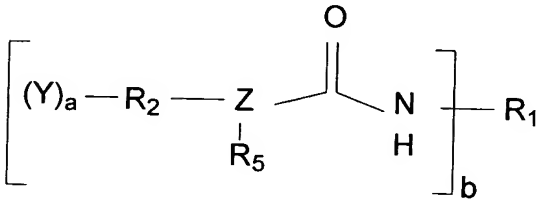
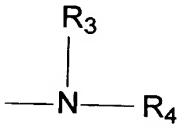
ABSTRACT

Low-cure powder coating compositions are disclosed, comprising at least one epoxy-containing resin and/or at least one siloxane-containing resin, and at least one material having the structure



(I)

wherein R_1 is an organic radical having 6 to 25 carbon atoms; each R_2 is independently a multivalent hydrocarbon group having 1 to 20 carbon atoms; Y is



; each R_3 and R_4 are independently alkyl or aryl groups having 1 to 8 carbon atoms; each Z is independently oxygen or nitrogen; R_5 is absent when Z is oxygen and R_5 is hydrogen, an alkyl or aryl group having 1 to 20 carbon atoms, or $(Y)_a$ $-R_2-$ when Z is nitrogen; a and b are integers; a is at least 1; b is 1 to 3; and (b) at least one epoxy-containing resin and/or at least one siloxane-containing resin. The material can optionally be reacted with an acidic hydrogen-containing compound. Some compositions are curable without using crosslinking agents or accelerators. Methods for coating a substrate using these compositions, the coated substrates, and additional catalysts useful for the same purpose are also disclosed.